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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/042,529	01/08/2002	Jay Rod Walton	PA010486	5530

23696 7590 12/16/2003

Qualcomm Incorporated
Patents Department
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EXAMINER	
SCHULTZ, WILLIAM C	

ART UNIT	PAPER NUMBER
2664	8

DATE MAILED: 12/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/042,529	WALTON ET AL.	
	Examiner	Art Unit	
	William C. Schultz	2664	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 January 2002*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-65* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6,9,12,13,15,22-24,28-31,34,38,44,47,48,50-55,58 and 60-65* is/are rejected.

7)☒ Claim(s) *7,8,10,11,14,16-21,25-27,32,33,35-37,39-43,45,46,49,56,57 and 59* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *08 January 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *4,7*.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-6, 9,12-13,15,22-24,28-31,34,38,44,47-48,50-55,58,60-65 are rejected under 35 U.S.C. 102(e) as being anticipated by Paulraj et al. [U.S. Pat. 6,351,499].

Regarding claims 1-3,12,13,28,29,30,31,44,47,48,52-54,58,61-65, Paulraj et al. discloses a method for scheduling data transmission for a plurality of terminals in a wireless communication system, comprising:

forming at least one set of terminals for possible data transmission for each of a plurality of frequency bands, wherein each set includes one or more terminals and corresponds to a hypothesis to be evaluated; **(col. 6, line 66 – col. 7, line 19)**

evaluating the performance of each hypothesis; **(col. 7, lines 57-67)**

selecting one hypothesis for each frequency band based on the evaluated performance; and **(col. 10, lines 23-31)**

scheduling the one or more terminals in each selected hypothesis for data transmission on the corresponding frequency band. **(col. 7, lines 20-32 – disclosed is Space- Time coding, another way to think of space-time coding is timeslots.**

Because each stream is transmitted in a separate slot varied by codes the data has been scheduled for transmission, each piece of data in it's own code slot)

Regarding claim 44, Paulraj et al. discloses a multiple-input multiple-output (MIMO) communication system utilizing orthogonal frequency division multiplexing (OFDM), a method for scheduling downlink data transmission for a plurality of terminals, comprising: **(fig. 1)**

forming at least one set of terminals for possible data transmission for each of a plurality of frequency bands, wherein each set includes one or more terminals and corresponds to a hypothesis to be evaluated, and wherein each frequency band corresponds to a respective group of one or more frequency subchannels; **(col. 6, line 66 – col. 7, line 19)**

forming one or more sub-hypotheses for each hypothesis, wherein each subhypothesis corresponds to specific assignments of a plurality of transmit antennas to the one or more terminals in the hypothesis; **(col. 7, lines 57-67)**

evaluating the performance of each sub-hypothesis; **(col. 7, lines 57-67)**

selecting one sub-hypothesis for each frequency band based on the evaluated performance; and **(col. 10, lines 23-31)**

scheduling the one or more terminals in each selected sub-hypothesis for downlink data transmission on the corresponding frequency band. **(col. 7, lines 20-32)**

further regarding claims 52,53, Paulraj et al. discloses the DSPD device in the disclosed embodiments above and in figure 4. **(col. 9, line 22 – col. 10, line 55)**

further regarding claim 58, Paulraj et al. discloses the device is a BTS in figure 1,2. **(col. 5, line 45 – col. 6, line 3)**

further regarding claims 62,65, Paulraj et al. discloses the device uses OFDM. **(col. 12, lines 11-35)**

Regarding claims 4,5,6,55, Paulraj et al. further discloses forming one or more sub-hypotheses for each hypothesis, wherein each subhypothesis corresponds to specific assignments of a plurality of transmit antennas to the one or more terminals in the hypothesis, and wherein the performance of each subhypothesis is evaluated and one sub-hypothesis is selected for each frequency band based on the evaluated performance. **(col. 7, lines 20-28; col. 8, lines 1-10, lines 23-26; col. 9, lines 1-12)**

Regarding claims 9,24,38,60, Paulraj et al. further discloses forming a channel response matrix for a plurality of terminals in a particular hypothesis, and wherein the performance of the hypothesis is evaluated based on the channel response matrix. **(col. 9, lines 29-45)**

Regarding claims 15,22,23,34,50,51, Paulraj et al. further discloses each sub-hypothesis is evaluated by

processing signals hypothetically transmitted from the one or more terminals in the sub-hypothesis to provide processed signals, and **(col. 9, lines 52-55)**

estimating signal-to-noise-and-interference ratios (SNRs) for the processed signals. **(col. 9, lines 61-68; col. 10, lines 1-15)**

Allowable Subject Matter

Claims 7,8,10,11,14,16-21,25-27,32,33,35-37,39-43,45,46,49,56,57,59 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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